

- 13 -

## CLAIMS

1. A substrate for use in a perpendicular magnetic recording medium, comprising a blank substrate and a film of phosphorus- or boron-containing cobalt alloy formed on the blank substrate by electroless plating, the electroless plated film of the cobalt alloy having surface roughness Ra in the range of 0.05 nm to 1 nm.
2. The substrate for use in a perpendicular magnetic recording medium according to Claim 1, wherein a number of defects occurring on a surface of the electroless plated film of the cobalt alloy and measuring 0.1  $\mu\text{m}$  or more in diameter and 7 nm or more in depth is less than 5 per surface.
3. The substrate for use in a perpendicular magnetic recording medium according to claim 1, wherein a number of projections occurring on the surface of the electroless plated film of the cobalt alloy and measuring 0.1  $\mu\text{m}$  or more in diameter and 7 nm or more in height is less than 5 per surface.
4. The substrate for use in a perpendicular magnetic recording medium according to any one of claims 1 to 3, wherein the electroless plated film of the cobalt alloy has a phosphorus content in the range of 1 mass% to 30 mass%.
5. The substrate for use in a perpendicular magnetic recording medium according to any one of claims 1 to 3, wherein the electroless plated film of the cobalt alloy has a boron content in the range of 0.1 mass% to 10 mass%.
6. The substrate for use in a perpendicular magnetic recording medium according to any one of claims 1 to 5, wherein the electroless plated film of the cobalt alloy has a thickness in the range of 0.1  $\mu\text{m}$  to 5  $\mu\text{m}$ .

- 14 -

7. A method for the production of a substrate for use in a perpendicular magnetic recording medium, comprising a step of forming on a blank substrate a film of phosphorus- or boron-containing cobalt alloy by electroless plating and a step of polishing a surface resulting from the step of forming the film by the plating.

8. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to claim 7, wherein the polishing step removes the electroless plated film of the cobalt alloy in a depth in the range of 0.15  $\mu\text{m}$  to 10  $\mu\text{m}$  and thins the electroless plated film of the cobalt alloy to a thickness in the range of 0.1  $\mu\text{m}$  to 5  $\mu\text{m}$ .

9. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to claim 7 or 8, wherein the polishing step uses polishing liquid containing water and abrasive grains and further contains at least one member selected from the group consisting of an oxidizing agent, a chelating agent and a pH-adjusting agent.

10. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to claim 9, wherein the polishing liquid has a pH value in the range of 3 to 9.5.

11. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to claim 9 or 10, wherein the abrasive grains contained in the polishing liquid have a concentration in the range of 1 mass% to 30 mass%.

12. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to any one of claims 9 to 11, wherein the abrasive grains contained in the polishing liquid are  $\text{SiO}_2$  grains having an average particle diameter (D50) of 20 nm or less.

- 15 -

13. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to any one of claims 9 to 12, wherein the oxidizing agent contained in the polishing liquid is hydrogen peroxide.

14. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to any one of claims 9 to 13, wherein the chelating agent contained in the polishing liquid contains at least one compound selected from the group consisting of EDTA, citric acid and succinic acid.

15. The method for the production of a substrate for use in a perpendicular magnetic recording medium according to any one of claims 9 to 14, wherein the pH-adjusting agent contained in the polishing liquid contains at least one member selected from the group consisting of aqueous ammonia, water-soluble organic acid and salts thereof.